June 17, 2008

Via Electronic Filing

Marlene H. Dortch, Esq.
Secretary
Federal Communications Commission
445 Twelfth Street, SW, TW – A325
Washington, DC 20554

Re: WT Docket Nos. 07-195 & 04-356– Notification of Written *Ex Parte* Presentation

Dear Ms. Dortch:

M2Z respectfully submits this *ex parte* presentation to provide the Commission with accurate information as it nears a decision in these proceedings, and in order to refute statements made recently by T-Mobile and AT&T in support of their suggestions that the Commission deviate when establishing out-of-band emissions ("OOBE") for the AWS-3 band from the 43 + 10 log (P) OOBE standard the Commission adopted in the 700 MHz proceeding. The 43+10 log (P) OOBE limit is the prevailing precedent when the Commission puts new commercial broadband spectrum into the market and when there is the possibility of mobile-to-mobile interference. Neither T-Mobile nor other commenters objecting to this standard have presented any relevant technical or policy justification for deviating from that precedent.

The Commission reaffirmed just last August its flexible and technologically neutral approach for service rules that enable wireless broadband services in the 700 MHz band by allowing *both* FDD and TDD operations in the band.[1] T-Mobile and AT&T nevertheless now claim that the 700 MHz OOBE limits should not apply in the AWS-3 band, though their rationale for taking this position cannot withstand scrutiny. Furthermore, instead of taking the Commission at its word concerning the permissibility of both FDD and TDD operations in the

[1] *See, e.g., Service Rules for the 698-746, 747-762 and 777-792 MHz Bands*, Second Report and Order, 22 FCC Rcd 15289, ¶ 94 (2007) ("*700 MHz Second Report and Order*") ("[T]he Commission provided for a flexible use approach with respect to the services and technologies, 'including provision of the full range of FDD- and TDD-based wireless services.'") (citing *Reallocation and Service Rules for the 698-746 MHz Spectrum Band (Television Channels 52-59)*, Report and Order, 17 FCC Rcd 1022, ¶¶ 70, 125 (2002) ("*Lower 700 MHz Report and Order*").

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700 MHz band, T-Mobile argues in a recent *ex parte* for the application of a narrow exception adopted by the Commission in the 700 MHz proceeding.[2] Ignoring the fact that the exception was designed only to provide protection for long existing "narrowband public safety" operations, T-Mobile cites the exception rather than the rule in support of the untenable argument that the Commission did not mean what it expressly stated when it established a 43+10 log (P) OOBE limit in its recent 700 MHz decision. T-Mobile's labored argument relies on the conclusion that the Commission "effectively" dedicated that entire band to FDD operations,[3] but that incorrect assertion is refuted by the Commission's decisions to adopt a flexible use regime for the 700 MHz band, and by its consequent rejection of calls to designate any particular band within 700 MHz for only a particular mode of operation.[4]

AT&T, on the other hand, seeks to have a large guard band set aside and seeks extraordinarily low transmitter power limits that would restrict severely the ability of the AWS-3 licensee to use the band for the delivery of broadband services.[5] Like T-Mobile, AT&T also argues that the Commission should impose unduly stringent OOBE standards on the AWS-3 Licensee.[6] Both companies fail to address FCC precedent on this matter and rely solely on arguments unsupported by technical or policy rationales.

The Commission's Past OOBE Standards are Consistent and Technologically Neutral

Due to the nature of radio transmissions, all transmitters emit some power outside of the intended bandwidth assignment. The OOBE limits set by the Commission define the rights and responsibilities of the licensees with regard to managing these spillovers into adjacent bands. As the Commission has transitioned to regulating digital emissions in various bands designated for broadband, it has created a framework into which two specific parameters must be factored in order to understand these OOBE standards unambiguously. One parameter is the emission limit relative to the intended signal and the second parameter is the bandwidth over which the OOBE is measured. These two parameters must be examined together when assessing the impact of the total power a device emits outside of its assigned bandwidth.

In various recent broadband proceedings including Broadband PCS, BRS/EBS, AWS-1, and 700 MHz, the Commission has used three different measurement bandwidths to specify OOBE limits: 1 MHz, 6.25 kHz, and 100 kHz.[7] Figure 1 below provides the values for the

[2] Letter from Kathleen O'Brien Ham, T-Mobile USA, Inc., to Ms. Marlene H. Dortch, WT Docket No. 07-195, at 2 (filed June 6, 2008) ("T-Mobile June 6 *Ex Parte*").
[3] *Id.*
[4] *See 700 MHz Second Report and Order* ¶ 94.
[5] *See* Reply Comments of AT&T, Inc., WT Docket No. 07-195, at 4-6 (filed Jan. 14, 2008) (AT&T Reply Comments).
[6] *See* Letter from Jeanine Poltronieri, AT&T, to Ms. Marlene H. Dortch, WT Docket Nos. 07-195 & 04-356, at 2 (filed June 5, 2008) ("AT&T June 5 *Ex Parte*").
[7] *See* 47 C.F.R. § 27.53(c), (g).

specific OOBE limits in each band and normalizes these figures to a common 1 MHz bandwidth. As can be readily seen in the chart below, the Commission has been exceptionally consistent in finding that 43+10 log (P) should be the OOBE limit normalized to the operational bandwidth of the adjacent band. In fact, a close reading of the emissions limits for the remainder of the 700 MHz band (other than the small portion of the band on which T-Mobile fixates) shows that the OOBE limits for other portions of the 700 MHz spectrum are actually more relaxed than the AWS-1, BRS, and Broadband PCS limits previously set by the Commission: when the 700 MHz limits are normalized over 1 MHz, they equal 33+10 log (P).

T-Mobile correctly notes in its June 6, 2008 *ex parte* that the Commission decided to retain more stringent limits for Upper 700 MHz C Block licensees in certain portions of the 700 MHz spectrum specifically to protect existing nearby public safety narrowband operations.[8] However, T-Mobile incorrectly indicates that the 76 + 10log (P) limit includes mobile transmissions.[9] Mobile and portable stations have a 65 + 10 log (P) emissions over 6.25 kHz which is equivalent to 43 + 10 log(P) over 1 MHz.[10] Thus, the mobile and portable station limits are actually equal to the commercial OOBE limits for the AWS, Broadband PCS, and BRS bands.

Figure 1: Broadband Emission Limits Adjusted Over 1 MHz

Emission Band	Permitted Channel Adjacencies	OOBE Limit	OOBE Measurement Bandwidth	Adjusted OOBE LIMIT @ 1 MHZ bandwidth[11]
Broadband PCS	FDD – downlink only	43 + 10 log (P)	1 MHz	43 + 10 log (P)
BRS	FDD and TDD (mobile-to-mobile)	43 + 10 log (P)	1 MHz	43 + 10 log (P)
AWS-1	FDD – downlink only	43 + 10 log (P)	1 MHz	43 + 10 log (P)
700 MHz–Public Safety	FDD and TDD (mobile-to-mobile)	65 + 10 log (P)	6.25 KHz	43 + 10 log (P)
700 MHz	FDD and TDD (including mobile-to-mobile)	43 + 10 log (P)	100 kHz	33 + 10 log (P)

[8] T-Mobile June 6 *Ex Parte* at 2; *see also 700 MHz Second Report and Order* ¶ 250.
[9] T-Mobile June 6 *Ex Parte* at 2.
[10] *See* 47 C.F.R. § 27.53(c)(4).
[11] Conversion from A + 10 log (P) over bandwidth BW (in kilohertz) to B + 10 log (P) over 1 MHz bandwidth is B = A + 10 log (BW/1000). Thus 65 + 10 log (P) over 6.25 kHz computes to B = 65 + 10 log (6.25/1000) = 65 – 22 = 43, and thus is equal to 43 + 10 log (P) over 1 MHz.

The Commission's Rules Have Previously Dealt With Mobile-to-Mobile Interference in Adjacent Channels

The Commission also has taken into account the possibility of mobile-to-mobile interference in adjacent channels when setting OOBE limits previously. This is particularly true for the BRS/EBS and the 700 MHz bands, in which the Commission's rules allow both TDD and FDD operations in adjacent channels.[12]

As the Commission's most recent decision on these types of issues, the *700 MHz Second Report and Order* is particularly instructive. The Commission's technical rules in the 700 MHz band allow for both FDD *and* TDD operations in any band, including on adjacent channels, at the discretion of the licensee. In fact, as indicated above, the 700 MHz proceeding shows that the Commission affirmatively declined to have certain bands limited to TDD and instead opted to allow licensees to choose whatever transmission protocol they prefer in any of the 700 MHz commercial bands. Within the context of 700 MHz, there are two specific cases where mobile-to-mobile (and base-to-base) interference could occur and to which the Commission's 43 + 10 log (P) OOBE limits apply:

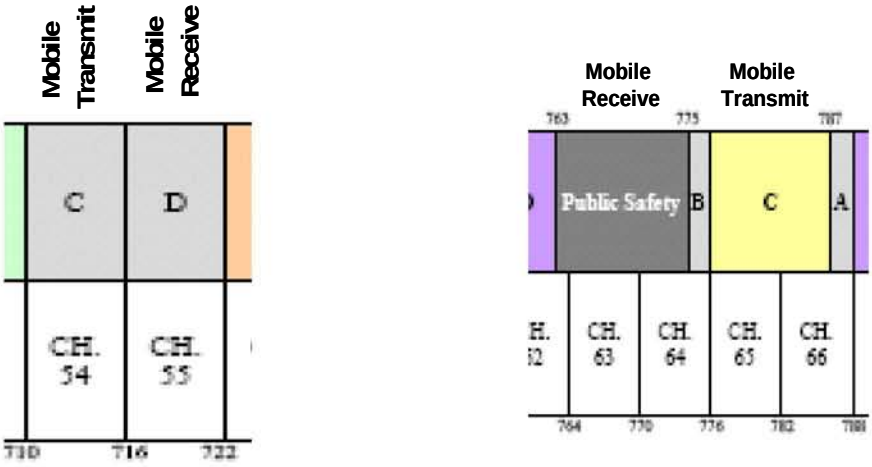
- Narrowband public safety mobile reception (769-775 MHz) from possible Upper 700 C-Block mobile transmission (776-787 MHz); and

- Lower 700 D-Block mobile reception (716-722 MHz) from possible Lower 700 C-Block TDD mobile transmission (710-716 MHz).

In both of these cases, the Commission provided licensees with the flexibility to deploy the most appropriate technology and the motivation to address any mutual interference concerns through any appropriate means (negotiation, technology, deployment methods, etc). Thus, it is most appropriate to follow these same emission standards for the coexistence of AWS-3 and AWS-1.

[12] *See, e.g.*, Comments of Sprint Nextel, WT Docket 07-195, at 8 (filed Dec. 14, 2007) ("The Commission's BRS-EBS rules were expressly designed to prevent mobile-to-mobile interference between FDD and TDD operations that had little or no frequency separation between them.").

Figure 2: 700 MHz Adjacent Mobile-to-Mobile Operations



T-Mobile's Erroneous Conclusions Regarding the 700 MHz Service Rules

Despite the Commission's decisions in the 700 MHz proceeding, T-Mobile now argues that a "combination of specific technical requirements" in that proceeding "effectively precludes TDD operations" in that band.[13] The truth, however, is that the Commission did not expressly or impliedly preclude TDD operations in the 700 MHz spectrum; instead, as illustrated above and discussed in greater detail below, the Commission *specifically* contemplated TDD deployments in the 700 MHz proceeding.

The Commission also made it clear in the 700 MHz proceeding that the 43 + 10 log (P) standard – which M2Z advocates for the AWS-3 band – would be the technical standard for harmful interference protection between broadband systems in the 700 MHz commercial bands. The Commission decided, for example, that it would "not require the Upper 700 MHz Band D Block licensee . . . to meet OOBE limits with respect to the public safety broadband spectrum" because "the D Block licensee, through the 700 MHz Public/Private Partnership, will operate on adjacent spectrum and use the same infrastructure as the public safety broadband licensee, and meeting OOBE was a measure designed to protect public safety operations from interference from unaffiliated commercial systems."[14] Furthermore, the Commission actually "liberalize[d] the technical rules applicable to A Block licensees" due to

[13] T-Mobile June 6 *Ex Parte* at 2.
[14] *700 MHz Second Report and Order* ¶ 251 (emphasis added).

the reconfiguration of the Upper 700 MHz band and the "placement of the Guard Band A Block between commercial spectrum blocks."[15] T-Mobile omits mention of the fact that the Commission removed adjacent channel power limits previously imposed on Upper 700 MHz Guard Band A Block licensees, and instead decided to "apply OOBE limits . . . consistent with emission limits applicable to the C Block," meaning that "A Block licensees are required to attenuate [their power] out-of-band by at least 43 + 10log P dB."[16]

T-Mobile makes additional mistaken claims about technical restrictions on the ability to operate TDD networks, imposed *sub silentio* by the Commission in the 700 MHz proceeding according to T-Mobile, but these restrictions have no basis in fact. The truth is that the Commission maintained from the beginning to the end of that proceeding its intent to implement service rules that maximized flexibility for eventual 700 MHz licensees that might use this valuable spectrum in various ways – including those that might use either FDD or TDD technologies. For instance, even in the Lower 700 MHz band in which T-Mobile finds previously unexpressed and unknown limitations on mobile receivers in the A, B, and C Blocks,[17] the Commission never deviated from this approach. Specifically, the Commission reallocated the Lower 700 MHz band and adopted a "flexible use approach" in order to "allow[ ] licensees to make determinations respecting the services provided and technologies to be used, including provision of the full range of FDD- and TDD-based wireless services."[18] The Commission also explained that it had "determined that licensees operating in the Lower 700 MHz Band should be required to attenuate the power below the transmitter power (P) by at least 43 + 10 log (P) dB for any emission on all frequencies outside the licensee's authorized spectrum," and noted that it would "adopt this standard consistent with the requirements for many of our radio services, including services in the Upper 700 MHz Commercial Band" – concluding in the end that it "should not increase OOBE limits given the potential adverse effects that may result on the commercial usefulness of the spectrum."[19]

Finally, though T-Mobile contends that "[i]n the lower band, high-power broadcast TV transmissions adjacent to the lower 700 MHz A block prevent mobile receivers in the lower 700 MHz A, B, and C blocks,"[20] it can cite no Commission rule or decision mandating this limitation. The flexible approach adopted in the 700 MHz band stands in stark contrast to situations in which the Commission has specified by rule the bands available for base station and mobile transmissions, as it did for various PCS spectrum blocks.[21]

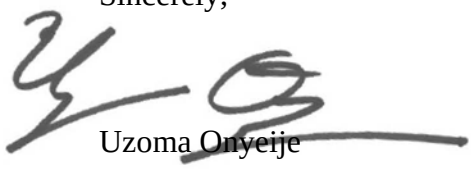
[15] *Id.* ¶ 266.
[16] *Id.* ¶ 262.
[17] *See* T-Mobile June 6 *Ex Parte* at 2.
[18] *Lower 700 MHz Report and Order* ¶¶ 70, 125.
[19] *Id.* ¶ 122.
[20] T-Mobile June 6 *Ex Parte* at 2.
[21] *See, e.g.*, 47 C.F.R. § 24.229(c).

AT&T's Proposal for AWS-3 Would Preclude Use of AWS-3 for Broadband Services

In its most recent submission, AT&T "endorses an OOBE level" of -66 dBm/MHz, which it cites as based on the current limit for UMTS devices,[22] and thereby joins T-Mobile in clamoring unjustifiably for unprecedented OOBE standards. AT&T's claims with regard to the need for additional protection of PCS and AWS-1 base station transmissions are just as flawed are T-Mobile's arguments (if not more so), as AT&T argues for even greater protections than those afforded to public safety in the Commission's 700 MHz proceeding.[23] As M2Z has shown previously in the record in these proceedings, technical studies indicate that imposition of more stringent OOBE standards than 43 + 10 log(P) would drastically reduce AWS-3 usable capacity "while providing an imperceptible amount of additional interference protection for AWS-1 licensees."[24] Despite the illusory benefits available to incumbent licensees from such heightened requirements, and the harm that such burdens would impose on potential uses of AWS-3, AT&T continues to argue for unduly stringent OOBE limitations. AT&T couples its latest call for overly restrictive conditions with its earlier arguments advocating the creation a guard band in the AWS-3 spectrum and the imposition of drastically reduced power limits for mobile uplink transmissions in the band.[25] The Commission should reject both T-Mobile's and AT&T's unsupported claims regarding the need for such unduly restrictive technical rules in the AWS-3 band.

Pursuant to Section 1.1206(b) of the Commission rules, an electronic copy of this letter is being filed. Please let me know if you have any questions regarding this submission.

Sincerely,



Uzoma Onyeije

[22] AT&T June 5 *Ex Parte* at 2.
[23] *See id.*
[24] Letter from Uzoma C. Onyeije, M2Z, to Ms. Marlene H. Dortch, WT Docket Nos. 07-195 & 04-356, at 3 (filed June 3, 2008); *see also id.* at 4 (providing a table illustrating the findings from the technical study).
[25] *See* AT&T Reply Comments at 4-6.